

## Claims

1. A process of reducing the concentration of SO<sub>x</sub> in a SO<sub>x</sub>-containing gas, said process comprising treating said SO<sub>x</sub>-containing gas with an effective amount of particulate petroleum coke at an effective SO<sub>x</sub> removal temperature of reduced SO<sub>x</sub> concentration to produce a treated gas; and removing said treated gas.  
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2. A process as defined in claim 1 wherein said petroleum coke is a fluid coke.
3. A process as defined in claim 1 wherein said effective temperature is selected from 600° - 1000°C.
4. A process as defined in claim 1 wherein said SO<sub>x</sub> concentration is at least 1%  
10 v/v in said SO<sub>x</sub>-containing gas.
5. A process as defined in claim 4 wherein said SO<sub>x</sub>-containing gas is a flue gas.
6. A process as defined in claim 4 wherein said SO<sub>x</sub>-containing gas is a smelter gas.
7. A process as defined in claim 1 wherein said SO<sub>x</sub>-containing gas further  
15 comprises NO<sub>x</sub> species, and said effective SO<sub>x</sub> removal temperature is also a NO<sub>x</sub> species removal temperature.
8. A process as defined in claim 1 wherein said SO<sub>x</sub>-containing gas further comprises metal species, and said SO<sub>x</sub> removal temperature is also a metal species removal temperature.
- 20 9. A process as defined in claim 8 wherein said metal is mercury.
10. A process for the production of activated carbon from particulate petroleum coke, said process comprising treating said petroleum coke with an effective amount of a SO<sub>x</sub>-containing gas at an effective temperature to effect reduction of said SO<sub>x</sub> concentration in said gas to produce a treated gas of reduced SO<sub>x</sub> concentration as  
25 defined in claim 1 and said activated coke; and collecting said activated coke.
11. A process for the production of elemental sulphur from a SO<sub>x</sub>-containing gas and particulate petroleum coke, said process comprising treating said petroleum coke with an effective amount of a SO<sub>x</sub>-containing gas at an effective temperature to effect reduction of said SO<sub>x</sub> concentration in said gas to produce a treated gas of reduced  
30 SO<sub>x</sub> concentration according to claim 1, said activated carbon and said elemental sulphur; and collecting said activated carbon and said elemental sulphur.
12. A process for recovering the heat of reaction in a process as defined in claim 1 further comprising

(a) reacting a feed SO<sub>x</sub>-containing gas with a petroleum coke at an effective SO<sub>x</sub>-reducing temperature to produce an effluent gaseous mixture, at a temperature of greater than 600°C, comprising S and of a reduced SO<sub>x</sub> concentration relative to said feed gas.;

5 (b) passing said effluent gas to heat exchange means comprising a transfer fluid to effect heat transfer to said transfer fluid to produce a hotter transfer fluid and cool said gas to a temperature below 200°C; and

(c) collecting said S and said hotter transfer fluid.